July 2015 Data Linkage Subcommittee Meeting

As we rapidly approach the end of another fiscal year, and prepare for the start-up of our 10th Year Safety Data Improvement projects in October, keep in mind the potential for significantly impacting our traffic records strategic planning this next year through questions raised by this subcommittee. If the 'driver' is one of the biggest challenges facing highway safety, and 'data' can play a stronger role in focusing on the driver, the TRCC needs to help make it happen.

Data Linkage Subcommittee

On July 14, 2015, we had a very good meeting of the Data Linkage Subcommittee. Every TRCC stakeholder attending the meeting contributed to the discussion. While a traffic records system is comprised of six core data systems—crash, driver, vehicle, roadway, citation and adjudication, and injury surveillance; most of the discussion centered on the "person behind the wheel" and what role data, especially linked data could play in focusing on the driver?

Driver Behavior

Can our data tell us what a high risk or bad driver is? Is it true that the cause in ninety percent of motor vehicle crashes is related to behavior by the person behind the wheel? Does the data from a motor vehicle crash regarding Driver Actions tell us about driver risk; and how does this compare to data from a traffic enforcement stop? If drivers are exhibiting bad behavior along a route and being ticketed, does this identify a risk on the driver's part, the roadway, or both? What percentage of tickets, issued for bad driver behavior go unpaid? What is the proportion of drivers who are continually ticketed for repeat driver behavior?

Driver License Renewal Procedures

Thanks to Hank Lindgren from CJIS for providing the following link - a state by state comparison by the Insurance Institute for Highway Safety for driver license renewal procedures for passenger vehicles - **http://www.iihs.org/iihs/topics/laws/olderdrivers?topicName=older-drivers**. Bob McGarry from DMV comments that the data for Connecticut looks accurate, except for the vision testing, which was repealed in 2011.

Driving a Motor Vehicle – a Privilege or a Right

In the context of operating a motor vehicle, the privilege of driving is generally granted to individuals by states on a conditional basis; including the driver's ability to pass both a written and skills test and the driver's ability to keep track record of abiding by the traffic laws and regulations. What is the breakdown of drivers in Connecticut who think that driving is a right?

Getting Linked Data is Only the Beginning

The NHTSA Traffic Records Program Assessment Advisory points out, that there are challenges to data integration – high costs, legislative restrictions, potential liabilities, or custodial resistance. The Advisory continues, however; that linked datasets are not an end in and of themselves. Data users, and decision-makers in particular, should have access to the resources that support their needs—including skilled analytic personnel and user-friendly access tools. Ideally, these resources are specifically designed to meet a variety of needs, including legislative queries, problem identification, program and countermeasure development, management, and evaluation, as well as meeting all reporting requirements. It was pretty clear from this week's discussions that the potential for data, especially linked data to play a stronger role in addressing "the person behind the wheel" is huge.

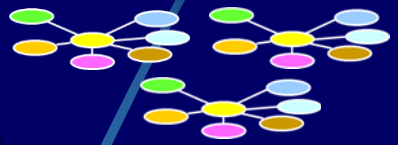
TRCC Charter – Role of the TRCC to Focus on Linked Data

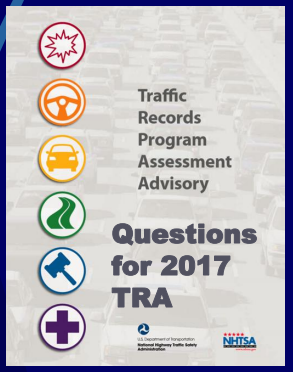
The first sentence in the TRCC Charter - whereas various state and local governmental agencies have recognized the need to work together to integrate Highway Safety Information Systems to enhance decision making and save lives and injuries on Connecticut's highways!

Data Integration

ConnDOT Headquarters
July 14, 2015

Multiple Data Systems





* **Welcome and Introductions**
* **Challenges/Benefits of Data Integration, TRCC Charter**
* **Participants - Discussion Points from NHTSA Advisory**
  - Data Integration: Linking of Databases to Support in-Depth Analysis ✓
* **Pina Violano, PhD, Injury Prevention & Research, YNHH**
  - Integrating Crash/Injury Datasets to Derive More Precise Injury Outcomes

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This meeting continues, where we left off, focusing on the NHTSA brochure - Roadway, Driver, Vehicle, Crash, Citation/Adjudication, Health/Injury Control - TR Datasets

Separating interface linkages, supporting key business processes, **from data integration**, addressing the **linking of databases to support in-depth analysis**

✓ **The development of new integrative linkages is driven by:**

Questions that cannot be answered with the discrete, unlinked component datasets

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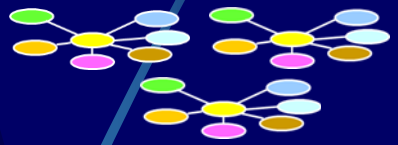
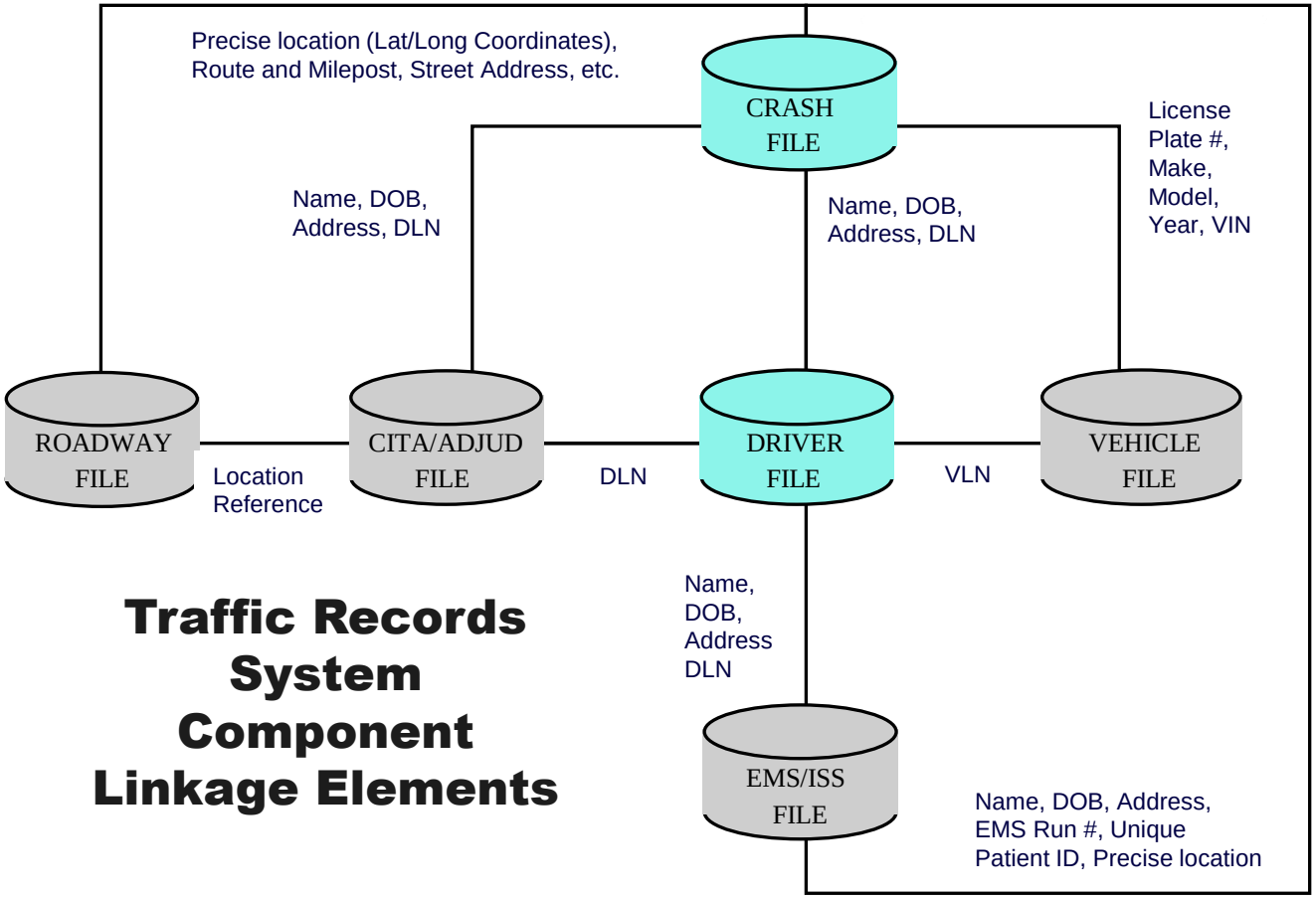
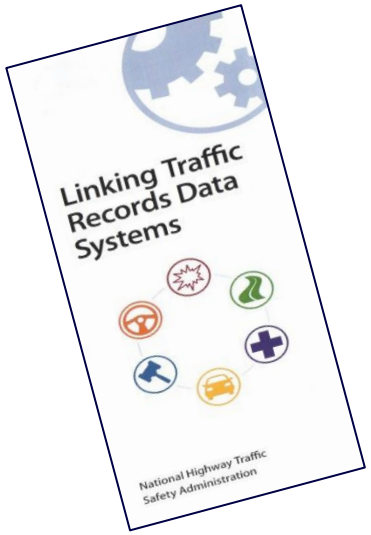


Data Integration to Support in-Depth Analysis

Crash, Driver, Vehicle, Roadway, Citation/Adjudication, Health/Injury Control



Traffic Records System Component Linkage Elements



Increasing the sharing of linked information to support a data-driven approach to traffic safety. Linked data can be a rich resource for developing and measuring progress of a State's Highway Safety Plan, as well as for research use by safety agencies and stakeholders

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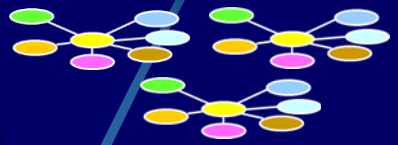

TRCC Charter

CONNECTICUT TRAFFIC RECORDS COORDINATING COMMITTEE CHARTER

Whereas various state and local government agencies have recognized the need to work together to integrate Highway Safety Information Systems to enhance decision making and save lives and injuries on Connecticut's highways

TRCC Function: Provide a forum for the discussion of highway safety data and traffic records issues and report on any such issues to the agencies and organizations in the State that create, maintain and use highway safety data

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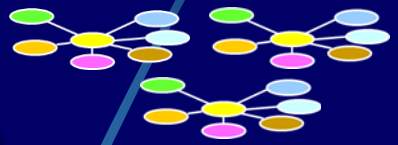

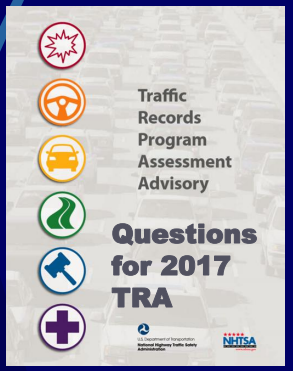

* Challenges - Data Integration ...

> High costs, legislative restrictions, potential liabilities, custodial resistance, or lack of skilled analysts. This is true particularly as the advantages to integration are not always clear in advance and the methods may be unfamiliar to data managers and decision-makers

* Benefits - Integrated Data - the Effectiveness ...

> of that decision-making depends on the accessible, high-quality data and analysis that is clearly enhanced when enriched through integrating multiple traffic records data sources. Benefits include:

1 Lower costs to achieve a desired level of data content and availability, 2 Support for multiple perspectives in data analysis and decision-making, 3 Expanded opportunities for data quality validation and error correction, 4 Additional options for exposure data to form rates and ratio-based comparisons, 5 Enhanced accuracy and completeness of data describing crash events, the road-way environment, and the involved people and vehicles, 6 Increased relevance of information available for legislative and policy analysis, and 7 Increased emphasis for advanced methods of problem identification, countermeasure selection, and evaluation of program effectiveness.

✓ Examples of the broader utility of information extracted from integrated traffic records datasets:

1 Analyses showing the costs of injuries associated with crashes in general, or specific crash types
2 Analyses illuminating more effective allocation of law enforcement resources, e.g., DDACTS
3 Analyses that associate crash risk with specific roadway features (ref. to Highway Safety Manual)

Data Integration

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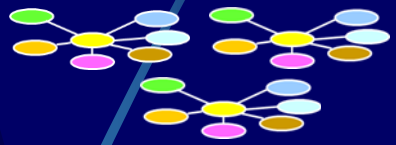

Separating Interface Linkages - Support Key Business Processes

from Data Integration

Data Integration

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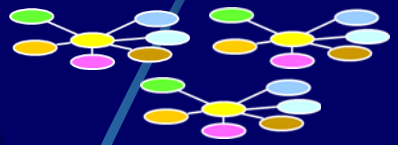
July 14, 2015

Agency

Multiple Data Systems



DOT

DMV

JUD

DPH

COG

CSP

LLEA

OTH

Crash/Driver Interface linkage enables law enforcement officers to validate and verify a driver's license in the field when filling out a crash report or citation

Citation/Adjudication Real-time access to individuals' driving and criminal histories in order to appropriately cite, charge, adjudicate, and impose penalties and sanctions

Driver/Vehicle Interface linkage - for a customer centric database, eliminating customer-related data errors

Injury Surveillance System Relationships within the system that enhance the continuity of patient care, and support system enhancements

Roadway Interface linkages that can be established between discrete systems within the State's roadway data component

Interface Linkage - a seamless, on-demand connectivity and a high degree of interoperability between systems that supports critical business processes

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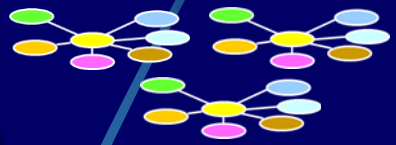

Separating Data Integration - Support in-Depth Analysis

from Interface Linkages

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Data Integration

Agency

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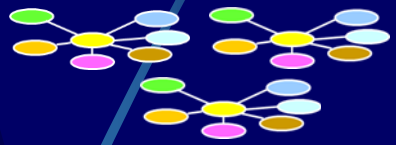

Traffic Records Assessment Questions

Data Integration to Support In-Depth Analysis

Q's for 2017 TRA

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Data Integration

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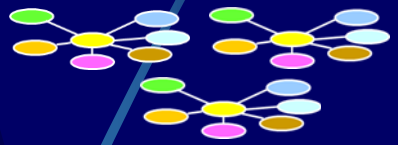

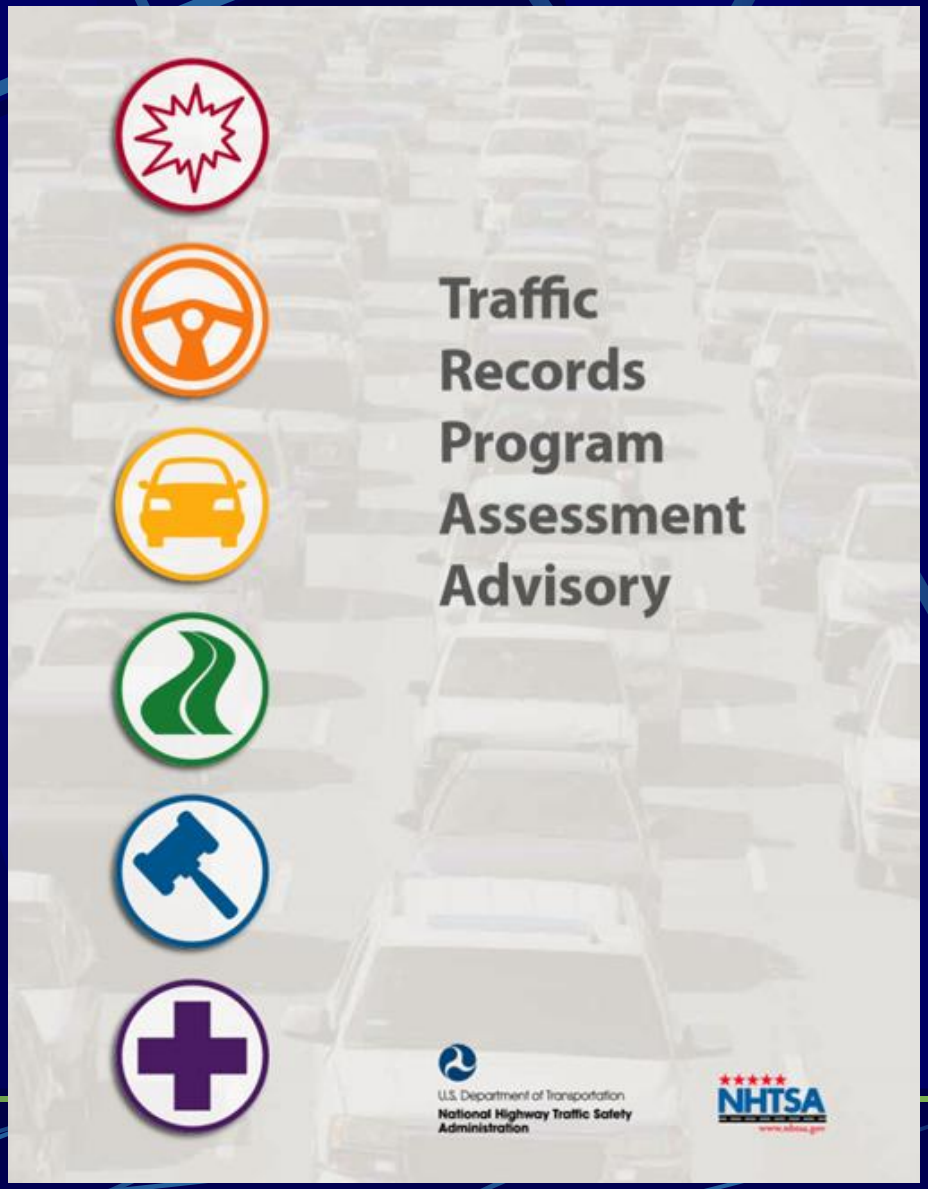

Q's for 2017 TRA

Data Integration

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DMV/DOT

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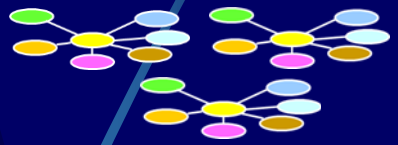


383. Is driver data integrated with crash data for specific analytical purposes?

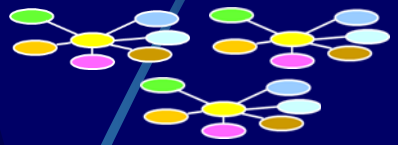
- Rank: very important
- **Evidence: Document an integrative crash-driver link, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include an assessment of graduated drivers' license law effectiveness or of crash risk associated with motorcycle rider training, licensing, and behavior.**

Q's for 2017 TRA

Data Integration

DMV/DOT

Multiple Data Systems



384. Is vehicle data integrated with crash data for specific analytical purposes?

- Rank: very important
- **Evidence: Document an integrative crash-vehicle link, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include crash trends among vehicle types or vehicle weight restriction by road classification.**

Q's for 2017 TRA

DOT/COG

385. Is roadway data integrated with crash data for specific analytical purposes?

- **Rank: very important**
- **Evidence: Document an integrative crash-roadway link, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include the identification of high crash locations and locations with similar roadway attributes or an assessment of engineering countermeasures' effectiveness.**

JUD/DOT

386. Is citation and adjudication data integrated with crash data for specific analytical purposes?

- **Rank: very important**
- **Evidence: Document an integrative crash-citation or adjudication link, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include an assessment of the relationship between illegal actions and crashes for specific driver subpopulations (e.g., older drivers) or of crash-involved DUI offenders' adjudications.**

Q's for 2017 TRA

DPH/DOT

387. Is injury surveillance data integrated with crash data for specific analytical purposes?

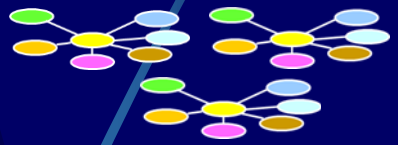
- Rank: very important
- **Evidence: Document an integrative crash-injury surveillance link, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include injury outcomes by specific crash type or injuries associated with occupant protection.**

DOT/CDR

388. Are there examples of data integration among crash and two or more of the other component systems?

- Rank: somewhat important
- **Evidence: Document an integrative link among crash and multiple data systems, the linkage variables, and example analysis, and the frequency of linkage.**
- **Example analyses could include an assessment of the safety impact of differential speed limits for different vehicle types.**

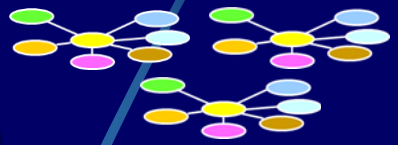
DOT/HSO



379. Do behavioral program managers have access to traffic records data and analytic resources for problem identification, priority setting, and program evaluation?

- **Rank: very important**
- **Evidence: Identify the data source and provide examples of program-specific analyses (e.g., reports, fact sheets, Web pages, contact ad hoc analyses).**

DOT/HSO



380. Does the State have a data governance process?

- **Rank: somewhat important**
- **Provide a narrative detailing the State's data governance process, identifying the personnel involved and describing how it supports traffic safety data integration and formal data quality management.**

Data governance - a set of processes that ensures that important data assets are formally managed throughout the enterprise. Data governance is the formal execution and enforcement of authority over the management of data and data related assets

Q's for 2017 TRA

Data Integration

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DOT/HSO

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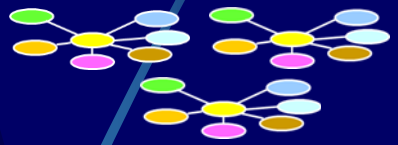
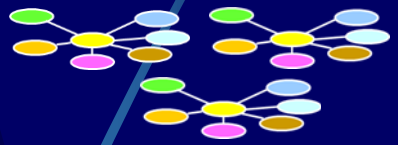


381. Does the State have a formal traffic records system inventory that identifies linkages useful to the State and data access policies?

- Rank: very important
- **Provide a copy of the system inventory specifying all traffic records data sources, system custodians, data elements and attributes, linkage variables, linkages useful to the State, and data access policies.**

Q's for 2017 TRA

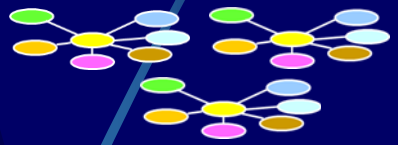
DOT/HSO



382. Does the TRCC promote data integration by aiding in the development of data governance, access, and security policies for integrated data?

- Rank: somewhat important
- **Evidence: Identify with appropriate citations, the TRCC strategic plan sections that demonstrate the promotion of data integration. (Pre-populate with latest strategic plan)**

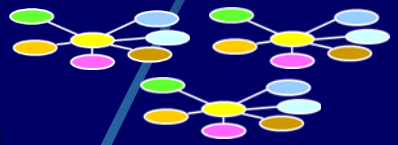
DOT/HSO



390. Do decision-makers have access to resources – skilled personnel and user-friendly access tools - for the use and analysis of integrated datasets?

- **Rank: somewhat important**
- **Evidence: Identify the analytical resources available: personnel, software, or online resources. Specify the decision-makers who have access to these resources.**

DOT/HSO



391. Does the public have access to resources - skilled personnel and user-friendly access tools - for the use and analysis of integrated datasets?

- Rank: somewhat important
- **Evidence: Identify the analytical resources available: personnel, software, or online resources. Specify who has access to these resources.**

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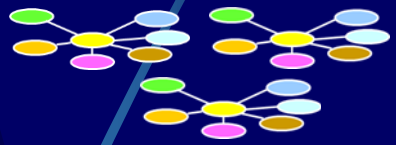

Linking Crash/Injury Datasets to Derive More Precise Injury Outcomes

Data Integration

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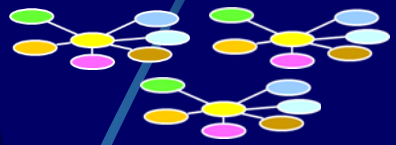
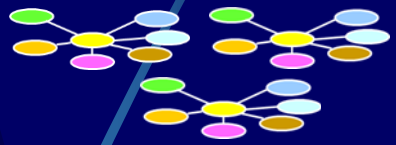


Linking Crash  Injury Datasets

* Proposed project in accordance with MAP-21, focusing on linking Crash with Injury data to derive more precise injury outcomes
* In question - the disparity between officer assessments of personal injury as recorded on the PR-1 prior to 2015, the new MMUCC PR-1 crash reporting system, and actual outcomes assessed by health care providers
* Steps include acquiring disparate datasets, performing linking functions, managing the resulting dataset, and conducting in-depth analyses on the linked data



Injury Severity for Persons Involved in Crashes

Legacy PR-1, prior to Jan 1, 2015	as determined by Officers utilizing KABCO scale
MMUCC PR-1, beginning Jan 1, 2015	as determined by Officers with increased emphasis on KABCO
Health Care Scales/Codes	as determined by Health Care Providers utilizing – • Abbrev Injury Scale (AIS) • International Classification of Diseases (ICD)

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Multiple Data Systems